REQUEST FOR PROPOSAL- Economic Impacts of Great Lakes Mapping

by

GLOS

Proposal due: December 20, 2026

Jennifer Boehme
Chief Executive Officer
proposals@glos.org

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Economic Impacts of Great Lakes Mapping

1. Introduction and Background

1.1 Organization Overview

The Great Lakes Observing System (GLOS) is a non-profit organization dedicated to advancing the understanding, management, and protection of the Great Lakes and coastal ecosystems. As one of eleven regional associations of the Integrated Ocean Observing System (IOOS) funded by NOAA, GLOS's mission is to deliver high-quality, real-time environmental data to support safety, sustainability, and informed decision-making across the Great Lakes. Through our innovative Seagull platform—a modern, cloud-based data system that integrates and visualizes live lake conditions from diverse sources including buoys, sensors, and model-generated forecasts—we make Great Lakes data accessible and actionable for millions of users.

GLOS serves a binational region encompassing eight U.S. states and two Canadian provinces, supporting over 40 million residents and a regional economy generating $6-8 trillion in GDP—ranking as the world's third-largest economy. Our organization operates with core values of Empowerment, Simplicity, and Integrity, striving to be the primary access point for Great Lakes information while fostering data-driven decision-making across maritime commerce, resource management, public safety, and scientific research.

1.2 Background

The Great Lakes represent one of North America's most critical natural resources, containing 21% of the world's surface freshwater and supporting diverse economic sectors from commercial shipping to recreational tourism. Despite this significance, our understanding of the underwater environment remains alarmingly incomplete. Currently, less than 15% of the Great Lakes has been mapped to modern high-density standards, compared to over 40% coverage for total U.S. ocean waters. This knowledge gap stems from reliance on bathymetric data collected primarily before 1960 using single-beam sonar technology, the equivalent of using a single flashlight beam to map a darkened stadium.

The consequences of inadequate lakebed mapping extend far beyond academic concern. Maritime commerce faces increased risks from unmapped hazards, particularly during low water periods, threatening the $50 billion in annual economic activity supported by Great Lakes shipping. The region's $7 billion fishery industry, supporting 75,000 jobs, struggles to manage ecosystems and protect 61 threatened or endangered fish species without comprehensive habitat data. Coastal communities lack the baseline information needed to predict and mitigate erosion impacts, especially as climate change accelerates environmental shifts. Infrastructure planners cannot accurately assess risks to critical underwater assets including municipal water intakes, telecommunications cables, and energy pipelines.

1.3 Purpose of RFP

GLOS seeks to commission a comprehensive economic impact study that will quantify the return on investment and broader economic benefits of mapping all five Great Lakes to modern bathymetric standards. This study will serve as the cornerstone document to support informing decisionmakers on the proposed $200 million Great Lakes Mapping Act and related federal, state, provincial, and private funding initiatives. The selected vendor will develop rigorous, defensible economic analyses that communicate the value proposition of comprehensive lakebed mapping to diverse stakeholder audiences including legislators, government agencies, industry leaders, and the public.

The 3D Nation Elevation Requirements and Benefits Study will form the basis of the analyses. This Study was conducted to document national requirements for improved topographic and bathymetric elevation data, estimate the benefits and costs of meeting these requirements, and evaluate multiple national enhanced program implementation scenarios. Study participants included 45 federal agencies, 56 states and territories, and 58 non-governmental organizations. An analysis of the results showed that an improved national elevation program providing the elevation data needed by users has the potential to generate ~ $13.5 billion in new benefits each year if fully operational. The study was sponsored by the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Geological Survey, and conducted by Dewberry under contract to NOAA. Completed in September 2022, the study analyzed over 1,350 Mission Critical Activities (MCAs) and classified these as 30 different business use cases (BUs) spanning four geography types: Inland Topography, Inland Bathymetry, Nearshore Bathymetry, and Offshore Bathymetry. Benefits for nearshore and offshore bathymetry were underrepresented in the study, so this RFP seeks to utilize new methods and recalculate the benefits (Deloitte Access Economics, 2021; Eunomia Research & Consulting, 2024).

The study must go beyond simple cost-benefit calculations to capture the transformative potential of complete bathymetric data for the region. This includes quantifying direct economic benefits, modeling indirect multiplier effects, assessing risk mitigation value, and identifying emerging opportunities enabled by high-resolution mapping. The final deliverables will provide GLOS and partners with compelling, data-driven narratives that justify this critical infrastructure investment.

GLOS will review all submissions and provide written notice to all applicants by December 18, 2026. The total estimated budget available for this phase of the project is **$102,750 USD**.

1.4 Key Business Objectives

Through this economic impact study, GLOS aims to achieve several strategic objectives that will advance the Lakebed 2030 Initiative and secure necessary funding for comprehensive Great Lakes mapping:

- Build an evidence-based business case that quantifies economic returns across multiple sectors including maritime commerce, fisheries, tourism, and public safety, demonstrating that mapping investment will generate positive ROI within defined timeframes.
- Create compelling engagement tools that translate complex economic analyses into accessible narratives for diverse audiences, ensuring stakeholders understand the value proposition.
- Establish baseline metrics for measuring mapping program success, including economic indicators, safety improvements, and environmental benefits that can be tracked throughout implementation.
- Strengthen regional partnerships by providing economic data that resonates with different stakeholder groups, from port authorities seeking navigation efficiency to beach managers focused on erosion mitigation.
- Support Lakebed 2030 strategies by delivering sector-specific impact assessments.
- Identify future economic benefits of emerging technologies in the blue technology (blue tech) sector, such as uncrewed and autonomous survey systems, AI-enabled data processing, advanced sensors, and digital twin applications, that high-resolution lakebed data would enable or accelerate.

2. Project Overview

2.1 Project Scope

The economic impact study will analyze the monetary benefits of an estimated $200 million investment (see Section 2.2) to collect new bathymetry data to map the Great Lakes to modern bathymetric standards, examining impacts across the binational region. The study must recognize the interconnected nature of Great Lakes economies, where benefits in one sector often cascade through related industries. For example, improved navigation safety reduces shipping costs, which enhances regional manufacturing competitiveness, ultimately supporting job growth and tax revenues.
Study Area. For the purposes of this study, the geographic study area is the lakebed of all five Great Lakes in both U.S. and Canadian waters, including Lake St. Clair and the connecting channels (St. Marys, St. Clair, Detroit, and Niagara rivers). Economic impacts should be estimated for the eight Great Lakes states.

The scope encompasses both quantitative economic modeling and qualitative assessment of strategic benefits. Quantitative analysis will employ industry-standard methodologies to calculate direct, indirect, and induced economic impacts across key sectors. This includes maritime transportation efficiency gains from optimized routing and reduced groundings, commercial and recreational fisheries enhancement through improved habitat mapping and stock management, coastal resilience benefits from better erosion prediction and mitigation planning, tourism growth enabled by expanded recreational opportunities and heritage site discovery, infrastructure protection through accurate assessment of underwater assets locations, and scientific innovation stemming from enhanced research capabilities.

Qualitative assessment will capture benefits that resist simple monetization but provide substantial value. These include improved public safety through better emergency response planning, enhanced environmental stewardship enabled by ecosystem-based management, strengthened regional competitiveness in attracting investment and talent, increased climate adaptation capacity for communities and industries, and advancement of Indigenous rights through improved understanding of cultural heritage sites.

2.2 Assumptions and Constraints

- Total mapping investment estimated at $200 million over 5-7 years, the amount authorized in the proposed Great Lakes Mapping Act. Independent industry estimates place data collection alone at $130–$187 million, before processing, production, and hosting costs. Because higher federal planning figures (up to approximately $300 million) have also been cited, the vendor shall test the sensitivity of ROI and net-benefit results across an investment range of $200–$300 million.
- Modern mapping technologies will be utilized to gather data
- Data will be publicly accessible through GLOS's Seagull platform and archived at NOAA NCEI
- Collaboration with federal, state, provincial, and tribal partners will continue

3. Scope of Work

3.1 Economic Modeling and Analysis

Building on the data foundation of the 3D Nation Elevation Requirements and Benefits Study, the vendor will develop an economic impact model using industry-standard methodologies such as IMPLAN (Impact Analysis for Planning) or REMI (Regional Economic Models Inc.). The model must capture the economic interdependencies within the Great Lakes region while remaining transparent and defensible to technical reviewers.

Direct economic benefits analysis will quantify immediate returns from mapping investment across sectors. For maritime commerce, this includes calculating fuel savings from optimized routing, reduced insurance premiums from decreased accident risk, increased cargo capacity from confident navigation in marginal conditions, and avoided costs from groundings and delays. Fisheries benefits encompass improved stock assessments leading to sustainable harvest levels, enhanced habitat protection, reducing restoration costs, and increased recreational fishing participation. Tourism and recreation gains include expanded access to underwater heritage sites, improved beach and boating safety, reducing accidents, and enhanced destination marketing opportunities.

Multiplier effect calculations will trace how direct benefits ripple through the economy. Using input-output analysis, the vendor will calculate Type I multipliers (inter-industry effects) and Type II multipliers (induced household spending effects) for each major benefit category. The analysis will distinguish between construction-phase impacts during mapping operations and ongoing operational benefits after mapping completion. Regional distribution of impacts will be assessed to understand how benefits flow across states, communities, and demographic groups.

3.2 Risk and Opportunity Assessment

The study will evaluate economic risks of maintaining the status quo and identify emerging opportunities enabled by comprehensive mapping. Risk assessment will model potential economic losses from scenarios including major shipping accidents in poorly mapped areas, ecosystem collapse from poor fisheries management, accelerated coastal erosion damaging infrastructure, and missed economic development opportunities.

Climate change represents a critical risk multiplier that comprehensive mapping helps address. The vendor will analyze how bathymetric data supports climate adaptation across sectors, calculating avoided costs from improved storm surge modeling, enhanced flood prediction and response, better understanding of thermal stratification and ecosystem impacts, and more accurate assessment of infrastructure vulnerability. These climate resilience benefits often provide the most compelling justification for public investment.

Beyond climate, the vendor shall assess other factors that can act as both risks and opportunities, including: **political and policy** factors (shifts in federal, state, provincial, and tribal priorities, appropriations timing, and binational coordination); **innovation** (advances in uncrewed systems, sensors, and AI-enabled processing that may lower costs or shorten

timelines, or the risk of delaying investment while waiting for them); **discovery** (shipwrecks, cultural heritage sites, geologic hazards, habitats, and resources that may create unexpected value as well as new management obligations); and **science** (improved hydrodynamic, ecosystem, and forecast models, versus the cost of continued data gaps). For each factor, the vendor should describe how it could raise or lower expected benefits and costs and reflect material factors in the scenario and sensitivity analysis.

Opportunity identification will explore new economic activities enabled by high-resolution mapping. Potential opportunities include development of underwater tourism and recreation industries, expansion of offshore renewable energy generation, growth in marine biotechnology and resource extraction, advancement of autonomous vessel navigation systems, and creation of new data products and services.

4. Project Milestones

4.1 Schedule and Deliverables

The project schedule and deliverables include, at a minimum:

4.1.1 Project Initiation

The vendor will participate in a kickoff meeting with GLOS leadership and key stakeholders to confirm objectives, refine methodology, and establish communication protocols. Initial deliverables include a detailed project workplan outlining specific tasks, timelines, and responsible parties; and data collection, review of 3D Nation business use cases, stakeholder consultation, GLOS-provided inputs, and responsibilities.

4.1.2 Data Collection and Synthesis

The vendor will compile and synthesize the data needed for the analysis, including relevant 3D Nation business use cases and benefit estimates, existing Great Lakes economic and sector data, inputs provided by GLOS and the Lakebed 2030 Initiative, and findings from targeted stakeholder consultation. The deliverable is a data synthesis memo documenting sources, assumptions, and data gaps, to be reviewed and accepted by GLOS before modeling begins.

4.1.3 Economic Modeling and Analysis

The vendor will use the result of the 3D Nation Requirements and Benefits Study as the starting point for its analysis. The vendor will work with GLOS and project team at the Lakebed 2030 Initiative to establish the lake-based business use cases relevant to the Great Lakes from the 3D Nation Study that will be included in the analysis. Model development will translate data into quantitative impact assessments that identify areas with high rate of return on investment and areas in need of further information to yield higher impact. The vendor will construct and calibrate economic models ensuring regional accuracy; run multiple scenarios testing sensitivity to key assumptions; calculate direct and multiplier effects across sectors; assess distribution of benefits across geography and demographics; and distinguish economic activity, monetized benefits, avoided costs, net benefits, and ROI.

Draft model results will be presented for stakeholder review, along with GIS-based economic impacts visualizations based on geographic location and business sector.

4.1.4 Report Development

Analysis synthesis will produce draft deliverables and recommendations for further study for review. The vendor will prepare comprehensive technical reports with full methodology and findings and incorporate feedback from GLOS and reviewers. A complete draft package will enable thorough review before finalization.

4.1.5 Finalization and Delivery

The vendor will incorporate final revisions and conduct quality assurance and deliver findings briefing to GLOS leadership and stakeholders.

4.2 Project Timeline

Total Duration: 6 months from contract execution (January–June 2027)
Expected Start Date: January 2027
Expected Completion Date: June 30, 2027
Respondents shall propose their own detailed schedule in the Project Plan section of the proposal (Section 6). The schedule must show dates for each deliverable in Section 4.1 and each payment milestone in Section 7, allow time for GLOS review and acceptance of each deliverable, and complete all work, including the final findings briefing, by June 30, 2027.

5. Vendor Qualifications

- Proven track record in regional economic impact analysis with at least 5 years of experience conducting studies of comparable scope and complexity
- Expertise in economic modeling using industry-standard software and methodologies (IMPLAN, REMI, or equivalent)
- Demonstrable experience with maritime, coastal, or Great Lakes economic studies showing understanding of relevant sectors and stakeholders.
- The proposal should include key personnel resumes highlighting experience with similar projects. Experience with the Seagull platform or NOAA/IOOS systems is advantageous.

The ideal vendor combines economic and technical analytical capabilities with understanding of Great Lakes regional dynamics and stakeholder needs.

6. Proposal Submission Guidelines

- Submit proposals electronically to **proposals@glos.org** by the **December 20, 2026** deadline.
- Format: PDF, maximum 10 pages. All pages should be single-spaced and composed in at least 11-point font with one-inch margins on 8.5” x 11” paper. The page limit excludes the cover page, resumes, and client references, which may be included as appendices.
- Sections should include but not limited to:
    - Executive Summary - Brief overview of the approach and value proposition.
    - Approach/Methodology - Detail your proposed approach to conducting the economic impact study. Describe specific methodologies for economic modeling including software, data sources, and analytical frameworks. Outline risk assessment and opportunity identification processes. Discuss quality assurance procedures ensuring accuracy and defensibility. Present innovation in approach that enhances value beyond standard analysis.
    - Project Plan - Timeline, milestones, and resource allocation aligned with the RFP timeline and the payment milestones in Section 7.
    - Project Costs: Detailed cost estimate (labor rates, hours, non-labor costs) broken out by project phase. Explain how figures fit within the development budget.
    - Team and Experience: Resumes of project lead(s) and key staff; descriptions of at least three relevant projects.

    - References: Contact information for at least two (2) client references for similar work.
- Questions: Submit via proposals@glos.org by **December 15, 2026**.

7. Budget

GLOS has allocated up to $102,750 for this comprehensive economic impact study. This budget reflects the strategic importance of the analysis while recognizing fiscal constraints. Proposals must demonstrate exceptional value within this budget constraint.

The budget should accommodate all necessary activities including economic modeling and analysis, report development and production, travel for up to 4 trips to Ann Arbor, MI, and presentation and dissemination support. Vendors should clearly explain how they will maximize impact within budget limitations, potentially through efficient methodologies, leveraged resources, or phased approaches.

Payments will be tied to completion and GLOS acceptance of agreed project milestones. The payment schedule will allocate 15% upon contract execution and approval of the work plan, 20% upon acceptance of the data collection framework and supporting data, 25% upon acceptance of the draft economic model, 25% upon acceptance of the draft report, and the remaining 15% upon final acceptance of all deliverables. The final payment includes a 10% contract holdback and a 5% final completion payment. No additional retention will be deducted from earlier milestone payments.

8. Evaluation Criteria

Proposals will be evaluated and scored on a combination of factors:

- Technical Approach and Methodology (35% weight). Excellence in technical approach demonstrates understanding of complex economic analysis. Top-scoring proposals will present sophisticated yet transparent modeling approaches, innovative methods for capturing hard-to-quantify benefits, clear frameworks for risk and opportunity assessment, and strong quality assurance procedures.

- Qualifications and Experience (25% weight). Demonstrated capability to execute similar projects successfully. Evaluation will consider relevance and quality of previous economic impact studies, specific expertise in maritime/Great Lakes economics, strength of team composition and qualifications, quality of references and past performance, and evidence of successful legislative/policy influence.

- Communication and Deliverables (20% weight). Ability to translate complex analysis into compelling narratives and GIS based visualizations. Assessment will examine quality of sample work products provided, proposed approach to developing varied communication tools, creativity in data visualization and presentation, and commitment to accessibility and clarity.

- Project Management (10% weight). Confidence in on-time, on-budget delivery. Review will evaluate realism and detail of proposed timeline, identification and mitigation of project risks, clarity of communication and coordination plans, and evidence of successful project management.

- Budget and Value (10% weight). Cost-effectiveness and value proposition. Analysis will consider reasonableness of proposed costs, clarity and justification of budget elements, value added through cost-share or leverage, and efficiency of proposed approach.

GLOS reserves the right to interview or request clarifications from shortlisted vendors. Final selection will be based on the overall best value, not price alone. Vendors may submit questions regarding this RFP to proposals@glos.org by **December 15, 2026**. Final decisions will be shared with all interested vendors by **January 18, 2027**.

9. Response & Contact Information

To respond to this request for proposal for the Economic Impacts of Great Lakes Mapping study, please submit your document(s) as per the submission requirements stated above to proposals@glos.org.

GLOS looks forward to partnering with an experienced team to demonstrate financial and societal returns for investments in bathymetry data and mapping activities. Proposals are due as specified above; GLOS and the Lakebed 2030 project team will evaluate all submissions according to the criteria and timelines outlined herein.

10. Proposal Submission Deadline

Following is the schedule for the proposal submission and award notifications.

- **RFP Issue Date:** November 18, 2026
- **Questions Deadline:** (submit via email to proposals@glos.org) December 15, 2026
- **Proposal Due Date:** December 20, 2026
- **Award Notification:** January 18, 2027
- **Project Kickoff:** January 2027

Late proposals will not be considered. Bidders must follow the instructions in this RFP exactly; failure to comply may result in disqualification.

11. References

1. Eunomia Research & Consulting. (2024). *Cost benefit analysis of seabed mapping: Final report (V5.1)*. UK Hydrographic Office. https://eunomia.eco/reports/cost-benefit-analysis-of-seabed-mapping/
2. Deloitte Access Economics. (2021, October). *The value of Australian seabed mapping data to the blue economy*. Geoscience Australia. https://www.deloitte.com/content/dam/assets-zone1/au/en/docs/services/economics/value-of-australian-seabed-mapping-data-to-blue-economy-131021.pdf